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New records of Ascidae and Blattisociidae species from Italy (Acarina, Mesostigmata)

Abstract - Two genera, *Hoploseius* Berlese, 1914 and *Neojordensia* Evans, 1957 and five species of Ascidae and Blattisociidae are recorded for the first time from Italy: *Iphidozercon corticalis* Evans, 1958, *Neojordensia sinuata* Athias-Henriot, 1973 and *Zerconopsis michaeli* Evans & Hyatt, 1960 (Ascidae), *Cheiroseius cassiteridum* (Evans & Hyatt, 1960) and *Hoploseius bispinisetus* Faraji & Sakenin-Chelav & Karg, 2006 (Blattisociidae). The record of *H. bispinisetus* is the second documented and the first for Europe. New records for *Arctoseius taeniolatus* Athias-Henriot, 1960 and *Zerconopsis remiger* (Kramer, 1876) (Ascidae), *Cheiroseius necorniger* (Oudemans, 1903), *Lasioseius muricatus* (Koch C. L., 1839), *Lasioseius youcefi* Athias-Henriot, 1959 and *Zercoseius spathuliger* (Leonardi, 1899) (Blattisociidae), are also given.

Key words: Ascidae, Blattisociidae, *Hoploseius bispinisetus*, new records, Italy.

Riassunto - Nuove segnalazioni per l'Italia di specie di Ascidae e Blattisociidae (Acarina, Mesostigmata).

Vengono segnalati due generi, *Hoploseius* Berlese, 1914 e *Neojordensia* Evans, 1957 e cinque specie di Ascidae e Blattisociidae nuovi per l'Italia: *Iphidozercon corticalis* Evans, 1958, *Neojordensia sinuata* Athias-Henriot, 1973 e *Zerconopsis michaeli* Evans & Hyatt, 1960 (Ascidae), *Cheiroseius cassiteridum* (Evans & Hyatt, 1960) e *Hoploseius bispinisetus* Faraji & Sakenin-Chelav & Karg, 2006 (Blattisociidae). Per *H. bispinisetus* si tratta della seconda segnalazione documentata della specie e della prima per l'Europa. Vengono inoltre segnalate nuove località per *Arctoseius taeniolatus* Athias-Henriot, 1960 e *Zerconopsis remiger* (Kramer, 1876) (Ascidae), *Cheiroseius necorniger* (Oudemans, 1903), *Lasioseius muricatus* (Koch C.L., 1839), *Lasioseius youcefi* Athias-Henriot, 1959 e *Zercoseius spathuliger* (Leonardi, 1899) (Blattisociidae).

Parole chiave: Ascidae, Blattisociidae, *Hoploseius bispinisetus*, nuove località, Italia.

Introduction

The mites of the families Ascidae and Blattisociidae are a large group of mostly free-living Mesostigmata which has successfully colonized many terrestrial and semi-aquatic habitats.

These two families were recently reconsidered and the family called Ascidae Voigts & Oudemans, 1905 was broken into Melicharidae, Ascidae, and Blattisociidae.

ciidae (Walter, 2006). About forty species of mesostigmatid mites, belonging to genera included in these families, are recorded from Italy, but they were listed according to the previous classification (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003; Plumari, 2003, 2008). However, some common European species are not recorded so far and some others were not investigated. Moreover, the checklist of these taxa must be revised for the Italian distribution, taxonomic classification in use and species inquirendae.

In this study I report the first record of two genera, *Hoploseius* Berlese, 1914 and *Neojordensia* Evans, 1957 and five species of Ascidae and Blattisociidae from Italy: *Iphidozercon corticalis* Evans, 1958, *Neojordensia sinuata* Athias-Henriot, 1973 and *Zerconopsis michaeli* Evans & Hyatt, 1960 (Ascidae), *Cheiroseius casiteridum* (Evans & Hyatt, 1960) and *Hoploseius bispinsetus* Faraji & Sakenin-Chelav & Karg, 2006 (Blattisociidae).

The record of *H. bispinsetus* is the second documented and the first from Europe.

New records for *Arctoseius taeniolatus* Athias-Henriot, 1960 and *Zerconopsis remiger* (Kramer, 1876) (Ascidae), *Cheiroseius necorniger* (Oudemans, 1903), *Lasioseius muricatus* (C.L. Koch, 1839), *Lasioseius youcefi* Athias-Henriot, 1959 and *Zerconopsis spathuliger* (Leonardi, 1899) (Blattisociidae), are also given.

Some remarks about the geographical distribution and ecology and selected references helpful for their identification, are supplied for each species.

Materials and Methods

Mites were extracted from samples of litter, bark, moss, wood inhabiting fungi and washed ashore material, in a modified Berlese-Tullgren funnel and collected specimens were preserved in 70 % ethanol. The mites were identified after clearing in lactic acid and slide-mounted in Hoyer's medium. I used the keys of Evans & Hyatt (1960), Karg (1981, 1993) and Gwiazdowicz (2003) in order to identify the mites. The classification used for the families Ascidae and Blattisociidae follows Walter (2006).

All of the collected specimens are deposited in the Civic Museum of Lentate sul Seveso, Milan, Italy.

Family Ascidae *sensu* Walter, 2006

Arctoseius taeniolatus Athias-Henriot, 1961

1961 – *Arctoseius taeniolatus* Athias-Henriot; p. 456, Text-figs. 196-198

2007 – *Arctoseius taeniolatus* Athias-Henriot in Gwiazdowicz; p. 129, Text-fig. 133

Material examined. TUSCANY, 62 ♀♀ and 5 ♂♂, Grosseto, Capalbio, WWF oasis “Lake of Burano”, 27.XII.1997, M. Plumari leg., leaf litter, in *Quercus ilex* and *Q. suber* coast wood; TUSCANY, 10 ♀♀, Lucca, Migliarino-S. Rossore-Massaciuccoli Regional Park, Macchia Lucchese, Torre del Lago Puccini, 19.VIII.2006, M. Plumari leg., litter under *Laurus nobilis*.

Distribution and ecology. *A. taeniolatus* was collected originally in Italy (Alpi Apuane, Lucca, Stazzema) from soil, and in Spain from habitat with *Atriplex halimus* (Chenopodiaceae) (Athias-Henriot, 1961).

More recently *A. taeniolatus* was recorded from Poland, from soil environment (Skorupski, 2001) and from litter of alder swamp forest and litter of old pine forest (Gwiazdowicz, 2007).

Remarks. *A. taeniolatus* was not listed among the species of the genus *Arctoseius* Thor, 1930 recorded from Europe (Karg, 1993) and Italy (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003).

Iphidozercon corticalis Evans, 1958

1958 – *Iphidozercon corticalis* Evans; p. 214, Text-figs. 62-64

1963 – *Leioseius (Arctoseius) elegans* Bernhard; p. 119, Text-figs. 59-61

1993 – *Arctoseius elegans* Bernhard in Karg; p. 263, Text-figs. 206b, 207b, 208a

2003 – *Iphidozercon corticalis* Evans in Gwiazdowicz; p. 153, Text-figs. 7b, 8a

2007 – *Iphidozercon corticalis* Evans in Gwiazdowicz; p. 136, Text-fig. 146

Material examined. LOMBARDY, 29 ♂♂ and 28 ♀♀, Milan, Parco sovra-comunale della Brughiera Briantea, Mariano Comense, “Cascina Mordina”, 31.III.2001, M. Plumari leg., dunghill.

Distribution and ecology. *Iphidozercon corticalis* was collected originally in Great Britain from bark of fruit tree (Evans, 1958). Later, this species was recorded from the following countries: Australia, in compost (Halliday *et al.*, 1998); Germany, from heaps of rotten vegetable material (Bernhard, 1963); Korea, soil of some forest habitats (Kaczmarek & Lee, 2000); Poland (Skorupski & Gwiazdowicz, 1996), in dung of *Bison bonasus* (L.) and moss (Gwiazdowicz, 2007).

Halliday *et al.* (1998) reared all of the instars of this mite feeding them with a variety of nematodes. Also, those authors assert that *I. corticalis* is a synanthropic species with cosmopolitan distribution.

Remarks. The following new synonymies were proposed by Halliday *et al.* (1998): *Iphidozercon corticalis* Evans, 1958 = *Iphidozercon californicus* Chant, 1963 = *Leioseius (Arctoseius) elegans* Bernhard, 1963 = *Iphidozercon variolatus* Ishikawa, 1969.

However, Gwiazdowicz (2003) pointed out that *I. corticalis* and *I. californicus* differ for some characters.

Neojordensia sinuata Athias-Henriot, 1973

1973 – *Neojordensia sinuata* Athias-Henriot; p. 26

1993 – *Neojordensia sinuata* Athias-Henriot in Karg; p. 247, Text-fig. 185d

2007 – *Neojordensia sinuata* Athias-Henriot in Gwiazdowicz; p. 101, Text-fig. 93

Material examined. PIEMONTE, 1 ♀, Novara, Mount Fenera Natural Park, Grignasco, Magiaiga stream, “Grotte di Ara”, 07.IV.2007, M. Plumari leg., under stone on stream bank.

Distribution and ecology. *Neojordensia sinuata* is an European species found in sand amid roots of *Ammophila arenaria* and under vegetable remnants (Karg, 1993; Gwiazdowicz *et al.*, 2007). This species was collected also in the following microhabitats: bird nests (Fenča, 1999; Gwiazdowicz, 2007), soil environment

(Skorupski, 2001), river mud and silt of oak-hornbeam forest, leaf litter and moss of alder and spruce swamp forest (Gwiazdowicz & Klemm, 2004; Gwiazdowicz, 2007), wet sandy clay soil and dead plants near water (Salmane, 2006), sods of grass in alder swamp forest (Gwiazdowicz, 2007).

Zerconopsis michaeli Evans & Hyatt, 1960

1960 – *Zerconopsis michaeli* Evans & Hyatt; p. 95, Text-figs. 189-191

1993 – *Zerconopsis michaeli* Evans & Hyatt in Karg; p. 262, Text-fig. 205b

2007 – *Zerconopsis michaeli* Evans & Hyatt in Gwiazdowicz; p. 141, Text-fig. 154

Material examined. LOMBARDY, 1 ♂, Milan, Groane Regional Park, Cesate, 10.XII.2006, M. Plumari leg., bark of dead *Pinus sylvestris*; LOMBARDY, 5 ♂♂, 10 ♀♀ and 4 deutonymphs, Milan, Parco sovracomunale della Brughiera Brianza, Meda, 02.IX.2007, M. Plumari leg., fruiting bodies of *Piptoporus betulinus*; LOMBARDY, 3 ♀♀, Ticino Regional Park, Pavia, Vigevano, “Tenuta Ronchi”, 10.II.2008, M. Plumari leg., fruiting bodies of *Corioloopsis trogii* on *Populus nigra*. MARCHE, 2 ♀♀, Ancona, Monte Conero Regional Park, Sirolo, 01.IX.2008, M. Plumari leg., rotting log. of *Pinus halepensis*.

Distribution and ecology. Originally collected in England (Evans & Hyatt, 1960), *Z. michaeli* has been recorded later on from Middle Europe, found in dry humus, rotting wood and litter of mixed woods (Karg, 1993; Gwiazdowicz *et al.*, 2007), from bark, rotting logs and stumps, ant nests (Skorupski, 2001), from leaf litter (Kontschán, 2007), in fruiting bodies of bracket fungi and litter from several forest ecosystems (Gwiazdowicz, 2007).

Remarks. According to Gwiazdowicz (2007), all of the collected specimens have four pairs of paddle-like setae on the dorsal shield, whereas Evans & Hyatt (1960) reported three pairs; yet the other features match Evans & Hyatt’s (l.c.) description. In his diagnosis of *Z. michaeli*, Kontschán (2007) reported only three pairs of setae with “spatula-form” (s4, Z3 and Z5), however in his original drawing of this species (fig.7, p. 101) there are four pairs of paddle-like setae (s4, s6, Z3 and Z5), confirming my observations and those of Gwiazdowicz (2007).

The usefulness of the s6 seta shape for the diagnosis of *Z. michaeli* and the potential intraspecific variability of this character should be evaluated by an examination of other specimens, collected possibly near the type locality.

Zerconopsis remiger (Kramer, 1876)

1876 – *Gamasus remiger* Kramer; p. 93

1910 – *Ameroseius bispinosus* Berlese; p. 253

1960 – *Zerconopsis remiger* (Kramer) in Evans & Hyatt; p. 92, Text-figs. 179-183

1961 – *Zerconopsis remiger* (Kramer) in Schweizer; p. 136, Text-fig. 175

1963 – *Lasioseius (Lasioseius) remiger* (Kramer) in Westerboer; p. 228, Text-figs. 109-117

1993 – *Zerconopsis remiger* (Kramer) in Karg; p. 262, Text-fig. 201a

2007 – *Zerconopsis remiger* (Kramer) in Gwiazdowicz; p. 143, Text-fig. 159

Material examined. LOMBARDY, 1 ♂ and 5 ♀♀, Como, Faggeto Lario, Lemna, 29.V.2005, M. Plumari leg., from bark of dead *Picea excelsa*; LOMBARDY, 1 ♂ and 13 ♀♀, Varese, Parco Regionale della Pineta di Appiano Gentile, Appiano Gentile, 26.III.2006, M. Plumari leg., under bark of dead *Pinus sylvestris*; LOMBARDY, 2 ♀♀, Brescia, Riserva Naturale Valli di Sant'Antonio, Valle di Campovecchio, 1300 m ca., 02.IX.2006, M. Plumari leg., from fruiting bodies of *Heterobasidion annosum* on *Picea excelsa*; LOMBARDY, 2 ♀♀, Varese, Parco Regionale della Pineta di Appiano Gentile, Lurago Marinone, 25.III.2007, M. Plumari leg., from bark of dead *Pinus sylvestris*.

Distribution and ecology. *Zerconopsis remiger* is a common European species (Westerboer, 1963; Karg, 1993; Gwiazdowicz *et al.*, 2007) recorded from several countries and found in many habitats: Bulgaria (Deltshev *et al.*, 1998); Great Britain and Hungary (Evans & Hyatt, 1960); North Italy (Südtirol, Bolzano, Terento), on *Ula sylvatica* (Meigen) (Diptera Pediciidae) (Rack, 1976), peninsular Italy and Sicily (Bernini *et al.*, 1995; Stoch, 2003); Latvia, fungal fruiting bodies and litter (Salmane, 2005a, 2005b); Poland, soil environment (Skorupski, 2001), fungal fruiting bodies (Gwiazdowicz & Łakomy, 2002), several forest ecosystems and microhabitats (Gwiazdowicz, 2007); Romania, litter (Stănescu & Gwiazdowicz, 2004); Slovakia (Holecová *et al.*, 2005); Spain, moss and rotten bark (Athias-Henriot C., 1961); Slovakia (Kaluz, 1993); Switzerland, humus and roots (Schweizer, 1961). Westerboer (1963) recorded this species also from Germany and Ireland.

Remarks. *Zerconopsis remiger* is not recorded from North Italy in Italian acarofauna's checklist (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003).

Family **Blattisociidae** *sensu* Walter, 2006

Cheiroseius cassiteridum (Evans & Hyatt, 1960)

1960 – *Sejus cassiteridum* Evans & Hyatt; p. 61, Text-figs. 74-78

1961 – *Sejus crassiteridum* Evans & Hyatt in Athias-Henriot; p. 445

1981 – *Cheiroseius (Posttrematus) cassiteridum* (Evans & Hyatt) in Karg; p. 58

1993 – *Cheiroseius (Posttrematus) cassiteridum* (Evans & Hyatt) in Karg; p. 258, Text-fig. 194a

Material examined. LIGURIA, 1 ♀, Savona, Monte Beigua Regional Park, Piampaludo, near "Torbiera del Laione", 21.I.2007, M. Plumari leg., damp moss; LOMBARDY, 1 ♀, Como, Albate, WWF oasis "Il Bassone", 07.XII.2007, M. Plumari leg., moss in flooded wood of *Alnus glutinosa*.

Distribution and ecology. Originally collected in England from roots of rushes and from *Sphagnum* (Evans & Hyatt, 1960), *Cheiroseius cassiteridum* was subsequently recorded from other European countries: Latvia, from washed ashore material and reeds (Salmane, 2005b) and Bulgaria (Deltshev *et al.*, 1998). Karg (1981, 1993) reported general distribution for Europe and South America. This species was recorded also from Algeria, collected from roots of rushes (Athias-Henriot, 1961), Colorado (United States Geological Survey, 1994) and Australia (Halliday, 2000).

Cheiroseius necorniger (Oudemans, 1903)

- 1903 – *Hypoaspis necorniger* Oudemans; p. 87
 1952 – *Episeius necorniger* (Oudemans) in Willmann; p. 148
 1960 – *Sejus necorniger* (Oudemans) in Evans & Hyatt; p. 55, Text-figs. 59-62
 1961 – *Platyseius necorniger* (Oudemans) in Schweizer; p. 124, Text-fig. 152
 1981 – *Cheiroseius (Posttrematus) necorniger* (Oudemans) in Karg; p. 58, Text-fig. 6d
 1993 – *Cheiroseius (Posttrematus) necorniger* (Oudemans) in Karg; p. 257, Text-figs. 194b,c
 2007 – *Cheiroseius (Posttrematus) necorniger* (Oudemans) in Gwiazdowicz; p. 152, Text-fig. 174

Material examined. LOMBARDY, 14 ♀♀, Ticino Regional Park, Pavia, Bereguardo, “Bosco della Zelata”, 07.V.2006, M. Plumari leg., under stones on stream bank; LOMBARDY, 21 ♀♀, Lecco, Pusiano Lake, Casletto, 14.V.2006, M. Plumari leg., under stones on lake shore; EMILIA ROMAGNA, 1 ♀, Parma, Cento Laghi Park, Corniglio, “Lagoni”, 29.X.2006, M. Plumari leg., under stone on lake shore; LOMBARDY, 2 ♀♀, Garda Lake, Brescia, Toscolano Maderno, 28.XII.2007, M. Plumari leg., washed ashore material.

Distribution and ecology. A widespread species recorded from several European countries (Karg, 1993): Bulgaria (Deltshev *et al.*, 1998); Czech Republic (Kohn, 1982), on *Culicoides pallidicornis* Kieffer (Diptera Ceratopogonidae) (Mašán & Országh, 1995); Germany (Willmann, 1952; Rack, 1976); Great Britain, saltmarsh (Luxton, 1967); North Italy (Südtirol, Monte Baldo), on *Erioptera stictica* (Meigen) (Diptera Limoniidae) (Rack, 1976); Latvia, agroecosystems, calcareous bog, coastal meadows, washed ashore material (Salmane, 2001a), driftline habitats (Salmane, 2001b), strawberry agroecosystems (Petrova *et al.*, 2004); Norway (Gwiazdowicz & Gulvik, 2005); Poland, on small mammals (Haitlinger, 1987), “wormdust” (Gwiazdowicz & Szadkowski, 2000), ecotone between Scots pine forest and meadow (Seniczak *et al.*, 2000), moss and sod (Gwiazdowicz & Kmita, 2004), several forest ecosystems and microhabitats (Gwiazdowicz, 2007); Russia (Marchenko, 1998); Switzerland, thermal spring and moss (Schweizer, 1961).

Cheiroseius necorniger was recorded also from Africa (Karg, 1993; Halliday, 2005) and Evans & Hyatt (1960) examined specimens from Great Britain, Germany, Montenegro and Transvaal.

Remarks. I collected most specimens by sight on shores under stones covered with mud and organic sediment. *Cheiroseius necorniger* is very common in this microhabitat. This species was not listed among the species of the genus *Cheiroseius* Berlese, 1916 recorded from Italy (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003).

Hoploseius bispinasetus Faraji & Sakenin-Chelav & Karg, 2006

- 2006 – *Hoploseius bispinasetus* Faraji & Sakenin-Chelav & Karg; p. 69, Text-figs. 1-13

Material examined. LOMBARDY, 37 ♀♀, Milan, Parco sovracomunale della Brughiera Briantea, Meda, 24.I.1999, M. Plumari leg., fruiting bodies of polypo-

rus; LOMBARDY, 1 ♀, Como, Albate, WWF oasis “Il Bassone”, 07.XII.2007, M. Plumari leg., fruiting bodies of *Daedaleopsis confragosa* on *Salix caprea*; LOMBARDY, 52 ♀♀, Como, Alserio Lake, Alserio, 20.I.2008, M. Plumari leg., fruiting bodies of *Corioloopsis trogii* on *Populus nigra*; LOMBARDY, 7 ♀♀, Ticino Regional Park, Pavia, Vigevano, “Tenuta Ronchi”, 10.II.2008, M. Plumari leg., fruiting bodies of *Corioloopsis trogii* on *Populus nigra*; FRIULI VENEZIA GIULIA, 2 ♂♂ and 18 ♀♀, Gorizia, Staranzano, Isola della Cona, 25.III.2008, M. Plumari leg., fruiting bodies of *Corioloopsis trogii* on *Populus sp.*

Distribution and ecology. *Hoploseius bispinisetus* was recently described on the basis of four specimens, three females and one male, collected from fungi of decaying wood, from Northern Iran.

Remarks. The nine species attributed so far to the genus *Hoploseius* Berlese, 1914 were collected from fungal fruiting bodies or phoretic on mycetophagous flies.

Only *H. mariae* Gwiazdowicz, 2002 is recorded from Europe, whereas the remaining *Hoploseius* species are known from North America, Africa, Asia and Australia.

H. bispinisetus is the only species of the genus with enlarged and spine-like dorsal setae *I4* (Faraji & Sakenin-Chelav & Karg, 2006).

I collected *H. bispinisetus* always from fruiting bodies of polyporous fungi. However, because most material was collected together with several specimens of *Cis bidentatus* (Olivier) (Coleoptera Ciidae), *H. bispinisetus* may be associated with these beetles.

This record is the second for *H. bispinisetus* and the first for the same species relative to Europe.

The finding of this species in the “Parco sovracomunale della Brughiera Briantea”, a suburban park regarded of little importance, contribute to increase the natural value of this area and relative habitats.

Lasioseius muricatus (C.L. Koch, 1839)

1839 – *Sejus muricatus* C.L. Koch

1922 – *Ameroseius pseudocometa* Schweizer; p. 42

1941 – *Aceoseius muricatus* (C.L. Koch) in Sellnick; p. 149

1958 – *Lasioseius muricatus* (C.L. Koch) in Evans; p. 218, Text-fig. 69

1961 – *Aceoseius muricatus* (C.L. Koch) in Schweizer; p.132, Text-fig. 168

1963 – *Aceoseius muricatus* (C.L. Koch) in Bernhard; p. 51, Text-figs. 5-16

1993 – *Aceoseius muricatus* (C.L. Koch) in Karg; p. 248, Text-figs. 185b, 187b, 191f

2007 – *Lasioseius muricatus* (C.L. Koch) in Gwiazdowicz; p. 85, Text-fig. 66

Material examined. EMILIA ROMAGNA, 26 ♀♀ and 4 ♂♂, Po Delta Park, Ravenna, Pineta di Classe, 29.IV.2007, M. Plumari leg., under bark of dead *Pinus pinea*; LOMBARDY, 12 ♀♀, Ticino Regional Park, Pavia, Vigevano, “Tenuta Ronchi”, 10.II.2008, M. Plumari leg., fruiting bodies of *Corioloopsis trogii* on *Populus nigra*.

Distribution and ecology. *Lasioseius muricatus* is a common species mostly recorded from Middle Europe (Karg, 1993) and found in fungal fruiting bodies and rotten wood: Great Britain, on *Polyporus* (Evans, 1958); Hungary (Kontschán,

2007); Latvia, banks of ditches (Salmane, 2001a), many fungal fruiting bodies and some microhabitats from forest ecosystems (Salmane, 2005a); Poland, rotten wood (Gwiazdowicz & Szadkowski, 2000), soil, bark, rotting logs and stumps, ants' nests (Skorupski, 2001), fungal fruiting bodies (Gwiazdowicz & Łakomy, 2002), rotten wood and root in alder forest (Gwiazdowicz & Klemt, 2004), many fungal fruiting bodies and some microhabitats from forest ecosystems (Gwiazdowicz, 2007); Slovakia, oak-hornbeam forest ecosystem (Holecová *et al.*, 2005); Switzerland, from *Polyporus* (Schweizer, 1961).

However, the records from Italy, in ants' nest (Plumari, 2003) and above records, from Republic of Komi, in fungal fruiting bodies (Makarova, 2004) and from Norway (Gwiazdowicz & Gulvik, 2005), show that *L. muricatus* is widespread throughout the Europe.

Remarks. *Lasioseius muricatus* (C.L. Koch) (= *Sejus muricatus* C.L. Koch, 1839) must not be confused with the type species of the genus *Lasioseius* Berlese, 1916, i.e. *L. berlesei* (Oudemans) (= *Seius muricatus* Berlese, 1887).

Lasioseius muricatus was not listed among the species of the genus *Lasioseius* Berlese, 1916 recorded from Italy (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003).

Lasioseius youcefi Athias-Henriot

1959 – *Lasioseius youcefi* Athias-Henriot; p. 177, Text-figs. 24, 26g-k

1989 – *Lasioseius youcefi* Athias-Henriot in Walter & Lindquist; p. 2800, Text-figs. 3, 4, 17, 19c,d,g

1993 – *Lasioseius youcefi* Athias-Henriot in Karg; p. 254, Text-fig. 192b

2005 – *Lasioseius youcefi* Athias-Henriot in Halliday; p. 21

2006 – *Lasioseius youcefi* Athias-Henriot in Christian & Karg; p. 219, Text-fig. 9.1

2007 – *Lasioseius youcefi* Athias-Henriot in Gwiazdowicz; p. 88, Text-fig. 72

Material examined. EMILIA ROMAGNA, 1 ♀, Po Delta Park, Ravenna, Marina Romea, 30.X.2005, M. Plumari leg., washed ashore material on sandy beach.

Distribution and ecology. *Lasioseius youcefi* is recorded from North and South America, Eurasia, and temperate areas of northern and southern Africa (Athias-Henriot, 1959; Walter & Lindquist, 1989; Karg, 1993; Lee & Lee, 1998; Halliday, 2005; Christian & Karg, 2006; Gwiazdowicz, 2007). Originally this species was found on the ground of a market garden and in wet mosses from a gorge (Athias-Henriot, 1959). In Europe it was collected from agroecosystems, inland and coastal meadows, spruce stands, bogs, mosses, litter, rotting vegetable remnants, fungi, straw, rotten apples, bark beetle galleries and nests of small rodents and birds (Karg, 1993; Salmane, 2001a, 2005a; Gwiazdowicz, 2007). In Colorado, *L. youcefi* is seemingly a specialist of canyon grassland sites along the streams (Walter & Lindquist, 1989). In laboratory *L. youcefi* breeds by thelytokous parthenogenesis and is omnivorous, feeding on fungi and animal prey (Walter & Lindquist, 1989).

Remarks. Walter & Lindquist (1989) assert that in the Berlese Collection in Florence, Italy, some slides of *Lasioseius berlesei* (Oudemans, 1938), i.e. 7/45, 27/36, 168/37, 176/35, 201/12 and 43/46, contain also females of *L. youcefi*.

The Berlese's material was collected in decaying leaf litter from Castiòn di Strada (Friuli Venezia Giulia, Udine), in humus from Sila woods (Calabria, Cosenza), from Pistoia (Tuscany) and unspecified locality named Fiumicello (Castagnoli & Pegazzano, 1985).

The finding of Walter & Lindquist (1989) and the record reported in this study show that *L. youcefi* is widespread throughout the Italy.

However, *L. youcefi* was not listed among the species of the genus *Lasioseius* Berlese, 1916 recorded from Italy (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003).

Zercoseius spathuliger (Leonardi)

1899 – *Seius spathuliger* Leonardi; p. 923

1905 – *Ameroseius zerconiformis* Berlese; p. 234

1958 – *Zercoseius spathuliger* Leonardi in Evans; p. 196, Text-figs. 28-29

1961 – *Zercoseius spathuliger* Leonardi in Athias-Henriot; p. 453, Text-figs. 58, 74

1963 – *Lasioseius (Lasioseius) spathuliger* Leonardi in Westerboer; p. 221, Text-figs. 104-108

1993 – *Zercoseius spathuliger* Leonardi in Karg; p. 283, Text-fig. 222

2007 – *Zercoseius spathuliger* Leonardi in Gwiazdowicz; p. 120, Text-fig. 119

Material examined. EMILIA ROMAGNA, 3 ♀♀, Po Delta Park, Ferrara, Volano, Pineta Demaniale Po di Volano, 26.III.2005, M. Plumari leg., rotting log of *Pinus pinaster*.

Distribution and ecology. *Zercoseius spathuliger* is recorded from Europe and northern Africa (Athias-Henriot, 1961; Karg, 1993; Gwiazdowicz *et al.*, 2007): Algeria, several soil microhabitats in forest, maquis and pseudo-steppe ecosystems (Athias-Henriot, 1959, 1961); Corsica, *Cistus sp.* litter (Athias-Henriot, 1961); Great Britain, moss and humus under deciduous stands (Evans, 1958); Iberian peninsula and Balearic Islands, in many ecosystems and microhabitats (Athias-Henriot, 1961; Moraza, 2006, 2007); peninsular Italy and Sicily (Bernini *et al.*, 1995; Stoch, 2003); Poland, soil environment (Skorupski, 2001), litter and moss (Gwiazdowicz, 2007). Westerboer (1963) recorded this species also from Ireland and Austria.

Remarks. *Zercoseius spathuliger* is not recorded from North Italy in Italian acarofauna's checklist (Bernini *et al.*, 1995; Castagnoli & Nannelli, 2003; Stoch, 2003).

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